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THE

Journal of the Society of Arts,

AND OF

THE INSTITUTIONS IN UNION.

112TH SESSION.]

FRIDAY, NOVEMBER 17, 1865.

[No. 678. VOL. XIV.

Announcements by the Council.

ORDINARY MEETINGS.

Wednesday evening, at Eight o'clock:—

NOVEMBER 22.—“On Water Supply, especially in Rural Parishes and Districts.” By J. BAILEY DENTON, Esq.

NOVEMBER 29.—“On the Proposed Purchase of Railways by the Government.” By WILLIAM HAWES, Esq., F.G.S.

DECEMBER 6.—“On the Graphotype, a Process for producing from Drawings, Blocks for Surface Printing.” By HENRY FITZ-COOK, Esq.

DECEMBER 13.—“On London Milk.” By J. CHALMERS MORTON, Esq.

DECEMBER 20.—“On Parkesine, its Composition, Manufacture, and Uses.” By OWEN ROWLAND, Esq.

CANTOR LECTURES.

The Cantor Lectures for the present Session will consist of Three Courses, to be delivered by G. W. HASTINGS, Esq., LL.D., Barrister-at-law; FLEEMING JENKIN, Esq., F.R.S.; and Dr. F. CRACE CALVERT, F.R.S.

The following are the particulars of Mr. Hastings's course:—

LECTURE I.—MONDAY, NOVEMBER 27TH.—“The Effects of the Discovery of the Precious Metals on the Ancient Civilisation of the Mediterranean.”

LECTURE II.—MONDAY, DECEMBER 4TH.—“The Effects of the Discovery of the Precious Metals on Modern Civilisation.”

LECTURE III.—MONDAY, DECEMBER 11TH.—“On Copyright.”

LECTURE IV.—MONDAY, DECEMBER 18TH.—“On Limited Liability.”

The other courses will be “On Submarine Telegraphy,” by Mr. Fleeming Jenkin, and “On Novel Applications of Chemistry to the Arts,” by Dr. F. Crace Calvert.

The lectures will commence each evening at Eight o'clock, and are open to Members, each of whom has the privilege of introducing one Friend to each Lecture. For this purpose a set of tickets for Mr. Hastings's course is forwarded to each member with this number of the *Journal*.

Proceedings of the Society.

FIRST ORDINARY MEETING.

Wednesday, November 15th, 1865; William Hawes, Esq., F.G.S., Chairman of the Council, in the chair.

The following candidates were proposed for election as members of the Society:—

Angier, Frederick J., 12, George-yard, Lombard-street, E.C.

Armstrong, Robert, Union Dock, Limehouse, E.

Arnold, Frederick, 4, Mountfort-terrace, Barnsbury-park, N.

Beattie, Joseph Hamilton, 11, Dowgate-hill, E.C.

Bennett, Solomon, 111, Richmond-road, Hackney, N.E.

Brown, Andrew Betts, Vauxhall Iron Works, Wandsworth-road, S.W.

Carlson, W. L., 66, Hatton-garden, E.C.

Cooke, Lieut.-Colonel A. C., R.E., 95, Mount-street, Grosvenor-square, W.

D'Andrade, A. de Carvalho Paes, 34, Darnley-crescent, Hackney, N.E.

Denman, The Hon. George, Q.C., M.P., 1, Tanfield-court, Temple, E.C.

Denoon, Alexander, 8, Marlborough-road, St. John's-wood, N.W.

Devonshire, F. H., 1, Frederick's-place, Old Jewry, E.C.

Do Nascimento, J. C. F., 34, Darnley-crescent, Hackney, N.E.

Dufrené, Hector Auguste, 10, Rue de la Fidelité, Paris.

Dyball, Sextus, 18, Bucklersbury, E.C.

Fairlie, Robert F., 56, Gracechurch-street, E.C.

Foster, Thomas Campbell, 2, Plowden-buildings, Temple, E.C.

Gray, Thomas, 7, Mincing-lane, E.C.

Greene, Matthew, 9, Gracechurch-street, E.C.

Hall, John, jun., 1, New London-street, E.C.

Henwood, Charles F., 4, Avenue, East India Chambers, Leadenhall-street, E.C.

Hill, Henry, 38, Bow-lane, E.C.

Holmes, William, 36, Basinghall-street, E.C.

Lepard, S., 127, Kennington Park-road, S.

Lutwyche, William, 224, Queen's-road, Dalston, N.E.

Moore, Alfred, Fitzroy-house, Bradmore-villas, Hammer-smith, W.

Mountain, Charles G., Suffolk Works, Berkeley-street, Birmingham.

Nathan, Samuel L., 6, John-street, Bedford-row, W.C.

Newby, Edwin H., 31, Cheap-side, E.C.

Nixon, Edwin, 2, Kennington-green, Lambeth, S.

Parkes, John T., Smethwick, near Birmingham.

Phillips, Thomas, 27, Beacon-hill, Holloway, N.

Prentiss, Charles, 245, Marylebone-road, N.W.

Richardson, James N., jun., Bessbrook, Newry.

Smith, Edward, 5, Crown-office-row, Temple, E.C.

Silk, G. C., Vicarage, Kensington, W.

Stewart, Alexander Y., Apothecaries' Hall, Water-lane, E.C.

Thomas, Frederick, 72, Bishopsgate-street Within, E.C.

Treble, George, jun., 42, Gloucester-street, Hoxton, N.

Vavasour, William, Clifford Hall, Finchley, N.

Waring, Charles, 5, Victoria-street, Westminster, S.W.

Whitmarsh, William M., M.D., Hounslow, W.

Wildy, Augustus, 11, Queen's-terrace, Regent's-park, N.W.

Williams, Frederick, M.P., Gonvrae, near Truro.

The CHAIRMAN delivered the following

ADDRESS.

Through the kindness of my colleagues on the Council I have the honour to deliver the opening address of this, the 112th, session of the Society.

I feel, in submitting to you the evidence that the Council has faithfully discharged its duty to the Society, and has fulfilled its obligations to the public, I am, on the third occasion of my addressing you, placed in rather an embarrassing position, for I fear that in claiming merit for the Society's proceedings during the past two years I may be considered as attributing to myself an undue portion of the honour which belongs exclusively to the Council and to the Society, the result of whose exertions I am proud to record. Let me, then, say that I believe no society can be served by a council more anxious to promote the objects for which it is elected, nor can any council receive more able, earnest, and zealous support from its officers than is received by the Council of this Society.

My first duty in this address, following the course usually adopted, is to pay a tribute of respect to the memories of the distinguished members whose loss the Society has to deplore during the past year.

In the Earl of Carlisle the Society and the country have lost a nobleman distinguished by his highly-cultivated mind, by his refined taste, by his eminence as a statesman, and by his desire at all times to support and to promote everything tending to encourage the purest taste in his own class, and the greatest improvement attainable by every other class of society.

In Mr. Gregson, Member of Parliament for the borough of Lancaster, the Society has lost an active friend, who never failed when required to give the Council the benefit of his advice and influence.

In Art a distinguished painter has passed from our list of members, Mr. David Roberts commenced life, like several of our great artists, as a scene painter and rose rapidly to distinction. His art can scarcely be termed landscape. It was confined to picturesque architecture; and from first to last the composition of his easel pictures, their treatment, and the groups with which they were filled, were essentially scenic. In this style he was highly distinguished, and became very popular, but he was better known and more appreciated by the publication of his sketches in Egypt, Syria, and the Holy Land. He was a member of the Royal Academy, and a large contributor to their exhibitions, and was for some time an active member of this Society's Council.

From our list of mechanicians we have lost Mr. John Fowler, the inventor of the steam plough; Mr. Neilson, the inventor of the hot

blast as applied to the manufacture of iron; Mr. Chance, a very distinguished glass manufacturer; and Mr. Appold, a most ingenious engineer, whose name will be long associated with the centrifugal pump.

Besides these the Society has lost, in Mr. Cassell, a member whose time and energy were exclusively devoted to the production of a new and greatly-improved literature for the people. The revolution he produced in the description of works compiled and published for the working classes entitles him to the character of one of their best friends. The skill with which he united amusement and instruction in all his publications—the judgment with which he selected classical works suited to the taste of his readers, and reproduced them, admirably illustrated, at a price hitherto unknown, making them as popular with, as accessible to, the people—secured for them a sale in unprecedented numbers. Mr. Cassell began life in Manchester, as a working carpenter, but throwing himself heartily, at an early age, into the temperance movement, he soon became a writer in the publications issued by that body, then a publisher of their tracts, and terminated his useful life as the senior partner in a house the extent of whose transactions in literature for the people has never before been approached. Mr. Cassell was undoubtedly a great benefactor of his country, and most richly deserves notice by this Society. It will, no doubt, interest many to hear the list of works he reproduced in that cheap and tasteful form which specially suited them to the wants and means of his readers. His first important publication, "The Working Man's Friend," was issued in 1850, after which there followed in succession the "Popular Educator" (of which 300,000 copies have been issued), the "Illustrated Family Paper" (which is still published weekly), the "History of England" (the circulation of which has reached 500,000), the "Illustrated Family Bible" (of which above 350,000 copies have been sold), "Natural History," the "Bible Dictionary," "Bunyan's Pilgrim's Progress and Holy War," "Robinson Crusoe," Goldsmith's works, Shakespeare, "Gulliver's Travels," "Don Quixote," "Fox's Book of Martyrs," and the "Quiver," a magazine for Sunday reading, has attained a weekly circulation of 100,000 copies.

In addition to these losses the Society has also been deprived of a Member of Council, Mr. Thomas Winkworth, who, for nearly forty years, took an active and prominent part in all its business, and was distinguished by his steady support of every measure calculated to promote the popular advancement of Arts and Manufactures. Connected with the silk trade, a branch of industry which was among the first to be exposed to foreign competition by the removal by

Mr. Huskisson of a portion of the prohibitory duties which then checked improvement at home and excluded our manufacturers from foreign trade, he, in opposition to the opinions of the majority of his brother manufacturers, at once adopted and supported the liberal policy of Mr. Huskisson; and, advancing as inquiry and the accumulation of facts developed its greatness and importance, he became not only a free-trader in his own manufacture, but an ardent supporter of free-trade principles in their broadest application to the trade and commerce of the country. These views led him, as a member of Council, in 1849, to support the proposed Exhibition of 1851, when it was limited to the productions of this country and its colonies, and he was among the earliest of the members of the Council cordially to support the great idea of His Royal Highness the Prince Consort for converting the National Exhibition into an International Exhibition of the productions of all Nations. Mr. Winkworth had great faith in the advantages to be derived by workmen, and art workmen in particular, from industrial exhibitions, and he was a subscriber to, and guarantor for, several of them. In Mr. Winkworth the Society has lost one of its oldest and most active members.

In addition to this list of members I must notice the death of Dr. Lindley, F.R.S., a most distinguished botanist, and formerly examiner in botany to the Society. Though not on the list of its members, he entered heartily into its educational plans, from the first establishment of examinations, and, with many other professors, gave his time for some years gratuitously. He was a zealous worker in the Exhibition of 1851 and in that of 1862, in which he had the entire charge of the Colonial department.

I will now call your attention to the proceedings of the Society during the past year, and show by what means we hope to promote its objects in the coming session.

I will first refer to the special committees appointed, two of which in particular occupied much of the time and attention not only of the Council but of other members of the Society who kindly assisted in the inquiries to which they were directed.

The Committee on Musical Education, presided over by Mr. Cole, has already made considerable progress in the inquiry entrusted to its care. It has collected very valuable information from the Chairman of the Committee of Management of the Royal Academy of Music, as well as from the Principal and others well informed on the subject, and, by the kindness of Earl Russell has been enabled, through the Foreign Office, to obtain accurate and official accounts of the practical working of the various Academies and Musical Institutions abroad. The evidence

taken has been published in the *Journal*, and among the members as well as the musical profession, has been the means of awakening attention to the subject, all parties agreeing that England ought not to be behind France and other countries of Europe in musical art.

Its inquiries will be renewed in the coming session, and I have confidence that public advantage will arise from them. So far as the inquiry has gone it has shown that whilst large funds are devoted to the encouragement of the study and practice of music, the result, from the number and diversity of the channels through which they pass, is entirely unsatisfactory, and that the administration of the Royal Academy requires amendment, for which that Institution itself is anxious.

The best mode of appropriating these funds, so as to produce the greatest effect on the musical education of the country, is a very large and very important question, and especially deserves the attention of this Society, for if the love and practice of music can be disseminated among the people here as it is abroad, they will contribute materially to raise the mental and moral status of our population, for no means will so effectually aid in checking the habitual resort to the public-house as a place of amusement, as local gatherings in villages and country districts for the enjoyment of vocal and instrumental music, preceded, as they must be, by many and frequent minor meetings and friendly associations for instruction and practice.

The second Special Committee, which was appointed to inquire whether anything could be done, by legislation or otherwise, to remedy or to mitigate the evils arising from the want of proper dwellings for the labouring classes, completed its inquiry and published its report in our *Journal*, No. 651, May 12. The resolutions adopted by this Committee, and the recommendations based upon them, did not, I fear, entirely satisfy those who promoted its appointment, for it was proved that but little could be done, either by the legislature or by individuals, immediately to remove or materially to mitigate the evils universally admitted to exist, but unfortunately inseparable from, the crowded streets and houses in which by far the largest proportion of our working classes are obliged to live. But, as a means of assisting those who are devoting a great deal of time to the removal of many of the moral and social evils incidental to this overcrowding, and who have expended large sums in providing improved dwellings for the industrious classes, the Committee recommended the Council to publish a Hand-book, pointing out the means by which nuisances arising from overcrowded lodging-houses, want of water, bad drainage, noisome works, &c., &c., may be re-

moved. This little work, which has been prepared by Mr. Ware, who ably discharged the duty of Reporter to the Committee, will soon be published, and will contain references to all the Acts of Parliament on the subject, and will point out how individuals or societies may proceed to enforce by law the removal of nuisances which are now tolerated, to the injury of public health, but to the pecuniary benefit of the owners of house property of the worst description, only because no one knows how to bring into operation the provisions of the numerous Acts of Parliament relating to them. The Committee believe that if the provisions of these Acts are enforced, the miserable but very profitable trade which now exists in overcrowded lodging-houses—where vice and immorality of all kinds are fostered and maintained—will gradually be eradicated, and those who now inhabit such houses will be obliged to seek less crowded, more healthful, and less vicious lodgings—the operation of which change upon labourers' dwellings in general, will be to raise the standard of accommodation to all, to the great benefit of morality and public health.

This change, however, must be a work of time, and all the Committee can hope for, as the result of their labours, is, that with this "Handbook of Sanitary Law" before them, many individuals and societies will attack the overcrowded, ill-drained, ill-ventilated lodging-houses, so as to restrict the number of their inhabitants, and secure improved ventilation and drainage, whereby much disease, vice, and misery will be prevented.

The general business of the Society during the past year has been, I think, of rather more than an ordinarily useful and interesting character.

Its proceedings with reference to Education and the system of voluntary examination, established in 1856, have been so fully explained at our previous meetings, that they require no other notice from me than to record their progressive advance in public estimation. It is necessary, however, when considering the figures I shall place before you, to recollect the greatly increased facilities for obtaining education, and for testing, by examination, the extent and soundness of that education, which now exist, compared with those accessible to the artizan and middle class when the Society first stepped forward to afford to all who desired it a public acknowledgment of their industry and knowledge.

The papers distributed by the Society, through the Institutions in Union with it, prepared the way for the success of the Oxford and Cambridge middle-class examinations, and for those more particularly adapted to artizans, conducted by the Department of Science and Art. Neither of these bodies, however, occupy the place

specially filled by our Society. The University Examinations test the proficiency and acquired knowledge of those who in most cases have had the advantage of careful teaching, and who have been able to devote several years exclusively to education. The advantage thus offered by the Universities to the scholars and teachers is of the greatest value. It has introduced a spirit of emulation between schools as well as between pupils, and henceforth the number of pupils who succeed in this examination will form an important element in the considerations which determine parents in the selection of schools for their children.

The Science and Art Department commences its examinations at a very early age, and thus prepares its pupils for more severe examinations at a later period; whereas our Society is the only body which offers means of testing knowledge in most cases acquired in leisure time without the aid of teachers, and after the work of the day has been completed—to those, in fact, who have not had the advantage of a preliminary school education and training, nor of attending in early life the teaching of the Department of Science and Art.

It is to me, then, most satisfactory to be able to report, notwithstanding the large numbers examined by the two public bodies I have referred to, that the number of those submitting to the stringent examination of the very able professors and others who undertake this duty for the Society annually increases, and that the papers, including some of the elementary branches of Mechanics, English History, Chemistry, Physiology, and Music have, on the whole, been very satisfactorily worked.

The number of students examined in 1865 was 1,199, against 1,068 in 1864; and the number of papers worked was 1,744, against 1,540.

The Prince Consort's prize has this year been awarded to Mr. Thomas Healey, of the Burnley Mechanics' Institution, who, in the present and the three preceding years, obtained no less than eight first-class certificates with six prizes.

The Cantor Lectures were as successful as in the previous year, and attracted crowded meetings of our members, and I am happy to be able to announce that we have made arrangements for three courses to be delivered during the coming season. The first course, to commence November 27, will be by Mr. G. W. Hastings, LL.D., whose opening lecture will be "On the Effects of the Discovery of the Precious Metals on the Ancient Civilisation of the Mediterranean." For the subjects of the remainder of this course I must refer you to the announcement in the *Journal*. The second course will be given by Mr. Fleeming Jenkin, F.R.S., on "Submarine Telegraphy;" and the third by

Mr. Crace Calvert, F.R.S., on "Novel Applications of Chemistry to the Arts."

Several of the Papers read at our weekly meetings last season were of considerable merit. I will refer particularly to that by Mr. Morton, on the "Application of Sewage;" to that by Mr. Wm. Stones, on "Colonization;" and to that by Mr. Coleman, on "The Food of Animals," for each of which the Society awarded its medal; and also to the papers by Mr. Burnell, on the "Municipal Organisation of Paris with respect to Public Works;" by Mr. John Bell, on "Window Horticulture;" by Captain Selwyn, on the "Art of Laying Submarine Telegraph Cables;" and especially to Mr. Steet's paper on "The Preservation of Food." This paper contained much useful and practical information on a subject of great moment at the present time, and I will avail myself of the opportunity this notice of Mr. Steet's paper affords me to call your attention to what the Society has in past times done to promote the supply of animal food from foreign countries for the use more particularly of our working population.

The Society from its earliest foundation directed its attention to the encouragement of the breeding of cattle and sheep; and I have, with the assistance of Mr. Davenport, found one paper among others, from which I hope it will not be uninteresting to read some extracts.

This paper, written by Mr. Dossie, a member of the then acting committee of the Society, was printed in 1771. It is entitled a paper on "*The Murrain or Pestilential Disease which appeared among our Cattle in 1769-70, and on the Methods of preventing Infection, and on the Medicinal Treatment of Beasts seized with it,*" which appear as applicable now as they then were.

After observations on the liability of cattle and sheep to disease, the writer says, "There is, however, a disease incidental to neat cattle, which, propagating itself by infection, raging at times in most countries in Europe, and carrying destruction wherever it comes, that it may truly be called a pestilence, has in its turn visited our island and made us experimentally sensible of its dreadful consequences. It prevails with great malignity at this time on the shores of the Continent opposite to us, whence some sparks of the contagion have been lately brought and kindled here in more than one place, as is imagined;" and he continues, "It is, indeed, only under particular circumstances, as will be shown, that cattle are susceptible of this infection, because when most diffused over the country it extinguishes entirely of itself in favourable periods when the general state of animals is healthful, as we have twice experienced in the present century. But the irregularity of

the late seasons, and particularly the great alterations of heat and cold, the continuance of wet weather, and the frequency of easterly winds, all of which are injurious to animal strength, and conspiring in this year, have manifestly weakened both vegetables and animals, have consequently rendered the cattle peculiarly susceptible of this infection, as well as mankind to those infectious distempers to which they are subject." * * * The writer then continues, "The effects of the contagion were (at first) confined to a few beasts. But it is to be apprehended, from the increased disposition of cattle to receive it in consequence of the unfavourable circumstances of the season, we have most mischievous consequences to dread from the infection if again introduced; and whoever will examine well the orders and regulations of the Government, made to hinder the spreading of the contagion, will find we can have little dependence upon them for our security against this momentous evil."

The writer then proceeds to investigate the causes of this distemper—the manner in which its contagion acts—the symptomatic appearances it exhibits—and the mode and success of the trials made to prevent infection and to cure the disease. He says, "many voluntary writers have published treatises on this subject, and professors of physic and academic bodies have been called upon by the authority of several governments to deliver their opinions upon it; but little success to practical utility has resulted from such labours."

He then endeavours to supply the information which was wanting, but this I cannot extract, though I hope the more important portions of this valuable paper will be hereafter given in our *Journal*.

By the historical notice of the disease we find that it appeared in the eighteenth century, in 1710 and 1711, when it was first observed in Hungary; from thence it went to Dalmatia, to Padua, and, spreading over the Venetian states, was disseminated through the whole of Italy, and passed, in 1713, to Germany by the Tyrol, from whence it was communicated north to Denmark and Sweden, introducing itself about the same time into Great Britain. After this, under the influence of more favourable seasons, the contagion abated, and in about nine years the infection seemed exterminated in most of these countries. About 1730 the disease appeared again, but the infection was soon extinguished; regulations by the Government were issued for its suppression. In 1740-41 it broke out in the south-east of Europe, and made its way as before, having been brought thither, it was believed, from Holland, and caused great devastation of the cattle for several years. In 1756 it raged with great

violence for some time, when it gradually abated, and, as far as it appeared, the infection was wholly lost, and did not reappear till the autumn of 1768, when it broke out afresh in two or three places, not, there is reason to believe, from the relics of the former contagion, but by new contagion brought from foreign parts, for while England was free from it for several years, it visited other places, Denmark and Jutland in particular, where it was more severe than had ever before been known.

From the result of careful inquiry during the latter invasion of the disease in several parts of Europe, the following observations were made:—

1. The infection of this disease prevails only at particular times anywhere; acts with greater violence at some times and some places than at others; affects only part of the cattle anywhere, and those with various degrees of malignity.

2. That where the infection does not subsist, it never comes but after some general cause has weakened the habit of the beasts in general—such as severe cold; want of sufficient and wholesome food; repeated alternations of heat and cold; moist air, replete with putrid vapours; long-continuance of easterly winds; or, what is more frequent, the combination of two or more of these causes. Thus, he adds, we find contagion invading every part of Europe in 1701, when the season had been so inclement the year before as to destroy a great part of the sheep in England. In 1741, when, after a very intense frost from December to April, by the rigour of cold and the scarcity of fodder the cattle had been reduced to a debilitated state aggravated by the constant easterly wind of the summer and autumn following.

I cannot follow all the remarks upon the principles which the writer believes affect contagion generally, but he asserts that the weaker animals are first and most severely attacked, and more frequently die under it; and he gives as the result of his inquiry that, though infection is the efficient cause of the murrain in cattle, yet there is a predisposing cause or particular state absolutely necessary to its acting or taking effect, and after inquiring into the causes of these predisposing conditions, he states his conclusions to be—

1. That the murrain is communicated by transmission of contagious matter from infected to sound beasts, and that it is only in this way the disease is spread.

2. That it is never communicated through the air.

3. That the contagious matter retains its power a considerable time.

4. That the infection will generally be exhibited in a few days; in a few cases it may not show itself for six or seven, and that after ten days there is no fear of the disease.

5. That the separation of cattle to prevent or to ascertain the existence of contagion need not in any case exceed fourteen days.

Mr. Dossie then enters at great length into a minute examination of the symptoms and treatment of the disease, and examines in detail the various modes of treatment to prevent it, and to cure it after it has appeared, which have been practised in England and foreign countries. He concludes by saying, "But alike has been the success of all the proposed remedies of these several classes, which is, that a remarkably greater number of the beasts to which they have been administered have died in proportion to that of those who have been left to nature."

The cause of this he carefully examines and says:—"The inefficiency of the supposed remedies for the murrain is less to be regretted because a great part of them would be attended with such expense and trouble as would render their general use inexpedient. Whatever method of cure is proposed to be serviceable must be practicable, with a moderate share of trouble and expense."

The symptoms of the disease and its progress in every stage and the appearance after death are next described, and he concludes thus:—"Hence it follows that the way to assist nature against attacks of this disease is to keep up the animal strength by such invigorating means as are compatible, in other respects, with a salutary economy," and he recommends, as best suited for this purpose, "astringent, febrifuge, gummous parts of vegetables, and vinous liquors," and explains by what means these remedies are to be applied so as to bring them within reasonable cost.

The rest of the paper is devoted to the examination of the Orders in Council, and the means recommended for preventing contagion, and in order to insure that the importance of the question may be fully appreciated, a statement is added, extracted from the statistical records of North and South Holland, of the loss of cattle in the twelve months commencing April 1st, 1769:—

Cattle infected	221,119
Died of disease	159,128
Cattle infected in the summer months, } from April 1, to September 30, 1769 }	86,423
Died	63,181
Cattle infected in the winter season, } from Oct. 1, 1796, to April 30, 1770 }	134,696
Died	95,497

And the total number estimated to have died in all the united provinces was above 300,000.

The paper then concludes with these words:—"It behoves every individual, according to his situation, to do his utmost to avert this impending danger, one of the most heavy calamities which can befall any European country, and

especially England, where the luxurious habits of the common people, and the difficulty of obtaining a supply of cattle from other places, and the high prices of the necessaries of life, would render a scarcity of horned beasts, and consequently of all other provisions, peculiarly grievous and intolerable."

If this would have been so 100 years ago, what would be the calamity of such a loss of cattle now? We could hardly look at the prospect which awaits us without the deepest anxiety, did we not feel assured that every possible precautionary measure is being taken by the Government, and more particularly by the owners of cattle to prevent infection from spreading, and to maintain our stock in the best possible condition, though at the same time we cannot but be sensible that an unreasonable fear of infection may produce a more serious effect on the supply of food next year, or even the year after, than the loss of cattle by disease this year. The importance of this subject leads me, however, to the consideration of the question whether, even in ordinary times, those on whom we rely for the production of our food are using the land entrusted to their care so as to secure for the dense population of these islands the greatest and cheapest supply of animal food. Although I have scarcely a right, from my want of practical knowledge, to say a word on this subject, I cannot refrain from suggesting that whilst we have the best and cheapest means at command to obtain whatever corn and other cereals we require from all parts of the world, our means of obtaining any important supply of animal food from foreign countries are very limited and most unsatisfactory, for I find in Mr. Steet's paper that whereas in 1853 we imported 125,253 beasts and 232,037 sheep, we only imported 150,838 beasts and 433,733 sheep in 1863, the one quantity being a little more than six months' and the other scarcely three months' consumption of London. It appears, therefore, looking to these facts, that greater attention should be devoted to the production in these islands of animal food than to that of vegetable food; and I am assured by those on whose knowledge and practical skill I can rely, that although to increase materially our supply of cattle and sheep would require some change in the present mode of cultivating our land, still that the land so cultivated would employ more agricultural labour, more capital in farming, and be more profitable than under the present system, which appropriates so large a portion of our soil to the cultivation of cereals, which can be produced cheaper abroad, to the neglect of the breeding of sheep and cattle, which can only be produced in the numbers we require at home. It appears to me that the people of this country are as yet only deriving a portion of the benefit they ought to receive from free-trade

in agricultural products, and that until all parties, landlords and tenants, co-operate with a determination to produce the largest quantity and the best quality of animal food, we shall be exposed in ordinary times to a gradual but certain augmentation of its price as our population increases, and at intervals, when disease attacks sheep and cattle, to prices so high as to take it out of the reach of the great body of the people, and thereby seriously injure the health and productive power of the nation, and materially increase the liability of our population to the ravages of disease.

From the period when Mr. Dossie's paper was written, 1771, to the present time, our Society has frequently offered prizes to encourage improvements in breeding and rearing cattle and sheep; and it will be in the recollection of the members that for the last two years Sir Walter Trevelyan has offered, through the Society, a prize of £70, to which the Council added the gold medal of the Society, for the best method of preserving meat, so that the large quantity now wasted in Australia and South America, and in other foreign countries, may be made available for consumption here. Several applications have been made to the Council for the award of this prize and medal, but no one has yet introduced a new process so successfully as to justify the Council in awarding either the one or the other; but, from information we have received, it seems likely that both will be claimed by Mr. Morgan, of Dublin, who read a very interesting paper on his new mode of curing meat in the season 1864. He had then imported a few samples of beef, cured by his process in South America, but from various causes, although much of the meat was sound, it did not arrive in a sufficiently satisfactory condition to justify, in the opinion of the Council, the award of the prize.

This year, however, Mr. Morgan appears to have taken energetic measures to secure a supply of the best cattle, and that great care should be taken not only in curing, but in packing and shipping the meat, and two large consignments of this meat are shipped, one of which has already arrived, and is now waiting inspection by the Society. Inquiry into the merits of the various plans proposed for preserving meat will form an important part of the duty of the Council in the ensuing session.

I cannot pass from this very interesting subject without directing the attention of the Society to the great want, at a period like the present, when our cattle are being attacked by a most fatal disease, of properly authenticated agricultural statistics. Serious as the loss of cattle from the ravages of the murrain may be, its amount is sure to be exaggerated, and the price of meat unduly enhanced, for the want of ac-

curate knowledge of its extent and progress. Every one is considering how this pestilence can be stayed, how the cattle attacked can be saved, and how we can best recover the loss which is sure to take place, so as to provide sufficient animal food for our population. But unfortunately we are without any means of obtaining reliable information by which these facts can be accurately ascertained, for surely, had we accurate information, we should not hear of cattle being destroyed by thousands in an ignorant panic of fear of infection. We have every return that can be desired of the quantity and quality of every article imported and exported, and of our mineral products, but we have no returns relating to our agricultural productions. The appearance of this disease will I hope enforce upon our agriculturists and our members of Parliament the necessity of immediate steps being taken for the annual collection of official returns respecting this all-important branch of our national industry. It will be a great subject for the new Parliament to enter upon, perhaps the only one in connexion with our internal trade which is entirely free from previous legislation, and which is therefore open to the introduction of a system which shall combine with efficiency and simplicity the most perfect returns of every description of produce from the soil of this country.

It is only from the knowledge afforded by official returns that, in times like the present, when a fatal disease suddenly attacks our herds, we can, with sufficient rapidity, introduce economy of consumption and stimulate supply, so as to avoid a scarcity of animal food, any material deficiency in which must be most injurious to the health and prosperity of the nation.

Captain Selwyn's paper, "On the Art of Laying Submarine Cables" also deserves special notice—not to criticise his views, or to enter into any controversy as to the best mode of laying such cables, but to express the interest the Society takes in the progress of the national work of providing telegraphic communication between England and America. We must all hope that the company in whose hands the accomplishment of this difficult but all-important work rests, will not fail to adopt every means to insure success to their next effort, and that no jealousy or rivalry between distinguished electricians, or between officers entrusted with the arduous duty of laying the cable when made, will prevent due weight and consideration being given to every plan which may be proposed to overcome the scientific or physical difficulties which necessarily attend this most interesting undertaking.

The prizes offered last year to art-workmen, for works of art executed by them in their leisure hours were not responded to so exten-

sively as the Council anticipated they would have been, only £274 out of the £500 appropriated by the Society to prizes having been awarded. In order to ascertain the cause of so few specimens being submitted for competition, the Council invited the exhibitors and their friends to a meeting in this room before the works were removed. The meeting was well attended, and the workmen present were consulted as to the reasons which in their opinion operated to prevent a more general response to the offers of the Society. Many suggestions were made, but the only cause assigned to which practical value could be attached was one which it is hardly desirable should cease to exist, viz., the great demand for work and the all but impossibility of the best workmen finding time to execute works of art requiring energy and thought, with uncertain remuneration, after their regular day's work was finished. Still, the general opinion of the meeting was so much in favour of this movement of the Society that a new list of prizes has been issued for this year, the results of which will, as before, be exhibited in this room.

In order, if possible, to extend the beneficial operation of the Society in this direction, and to excite still greater interest among workmen, the Society issued a circular to 50 or 60 of the great Companies in the city of London, asking either for a contribution to the prize fund, or that they should offer a prize for a work of art connected with the industries to which these guilds originally belonged. The value of the prizes, it was suggested, should range from £5 to £30. Few of the Companies took any notice of this communication, and two only, the Salters' Company and the Plasterers' Company, accepted the proposition of the Society.

The Council will not conceal its disappointment at the result of this attempt to interest these wealthy corporations in the progress of art workmanship. They owe their present position in a great degree to the benefactions of citizens whose fortunes were accumulated by the superiority of English over foreign workmen, and it was not unreasonable to expect that they would have co-operated with our Society in its endeavour to secure the full appreciation of the skill of our art-workmen, by the contribution of a small portion of their wealth to encourage those by whose labour and indefatigable perseverance under great difficulties, and with very scant acknowledgment by the public, they now have the gratification of possessing so many works of art, and of enjoying luxuries which are rarely duly appreciated owing to the facility with which they are obtained.

The Council has reappointed the Committee for marking the sites where eminent men were born, lived, and died. It is proposed to do this

by means of suitable tablets, which, if made in terra cotta, will be most durable; it is hoped that several such tablets may be put up; and any members of the Society who may possess information on the subject not generally known, may usefully assist the Committee by communicating with the Secretary.

The subject of the piracy of trade marks is fast becoming one of great importance to the manufacturers of this country, and the Council proposes to appoint a committee to inquire into the practical operation of the existing law, and to consider what improvements can be introduced to increase its efficiency; the committee will communicate with committees already formed with a similar object in the manufacturing districts.

The papers to be read at our Wednesday evening meetings will, I have reason to believe, fully equal those of former years; and I may safely refer you, in proof of this statement, to the list of subjects advertised for the meetings to take place before Christmas.

In my last address I referred to the arrangements which were then in progress for holding an International Exhibition in Dublin, and it is now gratifying to the Council to be able to record that this has been most ably carried out, and that artistically and financially it has been a success.

The International Exhibition to be held in Paris, in 1867, demands special notice by this Society. The scale on which it is designed, the extraordinary character and size of the building in which it will be held, the perfect organisation which is being adopted to secure not only the exhibition of specimens of everything connected with art, manufactures, and commerce, but their exhibition under such favourable circumstances as must secure the best contributions from every part of the world, and certainly from every producer who desires to retain or to obtain a reputation at home or abroad in connection with any branch of art or manufacture, all lead us to expect that a display will be made on this occasion such as has never been equalled in interest or extent. A Royal Commission has been issued by Her Majesty, to superintend the English arrangements. Our Society has the honour of being well represented on that Royal Commission. It is presided over by H.R.H. our President, and several of our Vice-Presidents and members have the honour of being commissioners.

This subject leads to another, of scarcely less interest to the Society, the award by the Council this year of the Albert Gold Medal to H.I.M. the Emperor of the French.

This medal, by the regulations under which it was founded, is to be awarded for distinguished services in promoting Arts, Manufactures, and Commerce; and the Council, in reviewing the

claims of many distinguished men, conceived that no individual had by his own acts and power contributed so much to promote all three as the Emperor Napoleon. By the removal of passports in France as regards English subjects, which led to great modifications of the passport systems of other countries; by his relaxation of the French navigation laws; by his powerful support and application of free-trade principles to the commerce between England and France; by his patronage of art; and by the liberal manner in which he is encouraging the proposed great International Exhibition of 1867, he has undoubtedly fulfilled the conditions required for the award of the medal, and rendered it all but impossible for the Council justly to award it otherwise than to His Imperial Majesty; and, in the words of our annual report, which was read to the Society in July last, I have much pleasure in announcing that the medal, having been conveyed to the Emperor by H.R.H. our President, was most graciously received.

And here I must notice an exhibition of a most interesting character, which has not received the attention it deserved. I refer to the Anglo-French Exhibition of Works of Art by English and French workmen at the Crystal Palace. This exhibition, entirely due to the spontaneous exertions of a few working men of both countries, must be looked upon as a remarkable proof of the progress of sound principles among them, and as the best evidence of the extinction of those anti-national prejudices which for so many years prevented both countries from properly appreciating each other's merits.

In my last address I referred to three great public works then in progress in the metropolis—the main-drainage—the Thames embankment—and the metropolitan railways. The main-drainage, designed by, and constructed under the able superintendence of, Mr. Bazalgette, has now been thoroughly tested, and although an important part of the system is yet unfinished—its completion having been delayed by the necessity of carrying it on in conjunction with the Thames embankment, under which the northern low level sewer is to be constructed—we had ample proof during the very high temperature and long-continued drought of the past summer, followed by a most unprecedented downfall of rain, above five inches in three weeks, that the work has most perfectly satisfied every condition imposed on the engineer. The drainage of the high and low districts of the metropolis is perfect, and the river, which was fast becoming a source of disease, is purified.

I cannot enter into a detailed description of the works executed on either side of the river, but I think I may confidently state that every one present at Crossness when the southern system was opened by His Royal Highness our Presi-

dent, was struck with the solidity, simplicity, and vastness of the works and machinery required to throw into the river in a few hours after high-water the whole of the sewage collected from the southern side of the metropolis.

The Thames embankment at the northern side of the river is very much advanced since we last met, and that on the southern side has been begun. The advantage which will be derived from this great work would be comparatively limited were it not for the new streets which are now being formed, and those for which powers will be sought in Parliament during the next session, whereby a spacious thoroughfare will be opened from the Mansion-house to the embankment at Blackfriars, and another from the embankment to Charing-cross, together forming a roadway from east to west worthy of our great city. To these great works I hope Mr. Bazalgette will soon be able to add another, the necessity for which is daily becoming more and more apparent; I mean water-works, sufficient to bring an ample supply of pure water to the metropolis. Considering what has been done at Glasgow, Liverpool, and Manchester, and the sanitary advantages derived from the supply of pure water to those cities, it will indeed be a disgrace to our Board of Works if any unnecessary delay arises in securing similar advantages to the metropolis of the country.

Mr. Bazalgette, by his admirably-conceived plans for the disposal of our sewage, has already done much to drive from among us certain classes of disease. I trust no support or encouragement will be wanting to enable him to complete his sanitary work, and to replace the vast volume of sewage he now carries away by a still larger quantity of pure water.

Our metropolitan railways, above and under ground, have also made great progress since I last had the pleasure of addressing you. In a few years, when the lines now constructing are united, as they will be, with others of a very important character—for which the sanction of Parliament will be sought in the ensuing session,—and are all working in unison, we shall pass to and from the City, east, west, north, and south without the delays and inconveniencies to which all traffic is now subject, and, notwithstanding the apparently great cost of these works, at a charge per mile much below any of the existing means of locomotion. The advantages our system of metropolitan railways will offer to working men will be very great. They will be able to live away from the crowded districts where they now reside, but be nearer to their work, in point of time and fatigue, than they now are, and they will be carried from all parts of London, at a very small cost, to the most rational places of amusement ever provided for the people of any country—to the

Crystal Palace on the southern, and to the Alexandra Park and Palace now building on the northern side of the metropolis. Nor must we, when referring to metropolitan railways, omit to notice the terminal buildings at the Victoria and Charing-cross Stations. They are handsome and imposing structures, and Mr. Barry's work at Charing-cross will take a place among our most beautiful buildings.

I cannot dismiss this subject of metropolitan improvements without referring to Mr. Burnell's paper, read on the 22nd of February last, on "The Municipal Organisation of Paris, especially with regard to Public Works," which directed our attention to the manner in which public works are designed and executed in that city.

The improvements in the streets of Paris have been carried out on a large scale with great vigour and with an uniformity of style and architectural beauty which we cannot approach. They are not, however, the acts of the people; they are entirely the work of the government; for although nominally the municipality of Paris has a voice in them, it is the "Prefect" who suggests, lays out, and is responsible for the plans submitted for the approval and sanction of the Emperor.

The reverse is the case with us. Individuals in combination propose, and after having obtained certain powers from Parliament, which are always granted to those who can prove that public advantage will follow the execution of their plans, execute our public works; but when the character of the work is not commercial but sanitary, or it has great public objects, then power is given to our municipal bodies to execute it, but in every case the action, regulated by certain fixed rules sanctioned by Parliament, is entirely independent of the executive government.

We have, then, in Paris and other cities in France great public works undertaken and paid for by the government. In England works of no less magnitude are constructed either by private enterprise or with funds provided specially for these purposes by the people.

If we compare the works in the respective capitals we find in Paris greater uniformity and greater architectural beauty in streets as a whole—though not in particular parts—than with us. We find works executed, not because the people who pay for them demand them, but with the double purpose of embellishment and sanitary improvement, and the political and military control of the city.

But, admiring, as we all must, the new boulevards, the new bridges, the new theatres, the walks in the Bois de Boulogne and other improvements, on which millions have been spent, may we not fairly challenge a comparison with our public works executed in about the

same time, as to their practical utility; will the improvements in Paris afford such economy of time, money, and convenience to all classes, or so good a prospect of improved health, as we shall derive from our metropolitan railways, our Thames embankment, and our main drainage. The improvements in Paris, Mr. Burnell informs us, cost ten to twelve millions sterling. Our English metropolitan improvements will cost little if any less. There is certainly no evidence in Mr. Burnell's paper that economy of construction forms one of the advantages of the Parisian administration.

It is then for the country to consider which organisation is the best, whether the Government, as some now propose, should have the uncontrolled expenditure of this large sum, deciding how and when it shall be spent, or whether the people, knowing what is wanted, what will most contribute to their comfort and well-being and will best repay the outlay, should themselves undertake to execute and to pay for the works required.

Among important metropolitan improvements I must not omit to mention the proposed Central Hall of Arts and Sciences, which will be erected at the north side of the Horticultural Gardens, on ground belonging to the Commissioners of the Exhibition of 1851. The Hall is to accommodate above 5,000 persons, and will be available for the following objects:—For congresses, national and international, for purposes of science and art; for performances of music, vocal and instrumental; for the distribution of prizes by public bodies and societies; for conversaziones of societies established for promoting science and art; for horticultural shows, and for national and international exhibitions of works of art and industry; for exhibitions of pictures, sculpture, &c.; and for any other purpose connected with science and art.

The funds for its erection will be provided, first, by the Commissioners of the Exhibition of 1851, who grant the site, at a nominal rent, for 999 years, the value of which is estimated at £60,000, and also guarantee one-fourth part, or £50,000, towards the cost of the building; and, secondly, £150,000 will be raised by the sale of boxes and seats, to be held for the full term of the lease, £260,000 being the entire estimated cost of the land, building, fittings, &c. The arrangements are at present under the management of a provisional committee, at the head of which is H.R.H. the Prince of Wales, but the management of the hall, when completed, will be vested in a governing body, under the authority of a Royal Charter.

Intimately connected as we are with almost everything calculated to promote the progress of science and art, we cannot but feel interested in the success of this revival of part of the plan of

the late Prince Consort to establish a central institution in London for the promotion of scientific and artistic knowledge, as applicable to productive industry.

I must now direct your attention to the new pictures which adorn our walls. They have been presented to the Society by the subscriptions of a number of its members. The designs for them are in fact James Barry's; he left two engravings for the pictures he intended to fill the spaces now occupied by the portraits of Her Majesty and the Royal Princes and Princesses living in 1851, and of H.R.H. the Prince Consort, our late President. In Barry's original design the one space was to have been filled with a portrait of George III. presenting the Charter of Independence to the Judges, and the other with a group of Queen Charlotte surrounded by her family. The artists, Mr. Cope and Mr. Horsley—Mr. Cope having painted the Prince, and Mr. Horsley the Queen—were specially requested to carry out, as nearly as was consistent with the object in view, the intentions of Barry; and the Council hope the subscribers will be fully satisfied with the manner in which each artist has fulfilled his somewhat unusual and difficult task.

In concluding this address I believe I may assure you that the Society is entering upon the 112th Session with every prospect of continued vigour and success. Still the Council must urge upon members the necessity of their co-operation in promoting its objects, either by reading papers at our weekly meetings, or by attending and taking a part in the discussions, or by assisting on committees. Supported as it hitherto has been by the Society, the Council cannot doubt but that year by year a constant accession of members, all animated by a desire to aid in promoting the Arts, Manufactures, and Commerce of our common country, will testify to its prosperity and usefulness.

Vice-Chancellor Sir W. PAGE WOOD, in rising to propose a vote of thanks to the Chairman for his address, said—Mr. Hawes had now been for the third time elected chairman of the Council of this Society. The address they had just heard he thought sufficiently justified the appointment, but they all knew, though scarcely perhaps to their full extent, the very arduous duties that were imposed upon the chairman. He had to devote a very large portion of time throughout the year to the discharge of his duties as chairman, for besides the attendances at the meetings of the Council and committees, which entailed a considerable sacrifice of time to one who had other avocations and duties to attend to, he had to devote a considerable portion of time to the reading of documents and important correspondence; in fact, he had more duties to perform than unpaid functionaries were usually willing to undertake. Those duties had been ably and punctually performed by Mr. Hawes. The address they had listened to was, he thought, extremely satisfactory and encouraging. It was scarcely necessary to comment, as he (the Vice-Chancellor) had done on former occasions, on the great development of the Society of Arts, which,

as they were aware, had taken place since the keen and lively interest taken in it by the lamented Prince Consort. He was old enough to recollect the time when the Society of Arts had dwindled down to a very small body, whose influence was but slight. Now, however, its influence was diffused throughout the length and breadth of the land. The circumstance that no fewer than 1,200 young men took advantage of the Society's examinations showed how largely diffused and highly appreciated were its efforts to promote education. The field before them was still a wide one. The programme just put forth by the chairman was one of peculiar interest and importance. To dilate further upon the subjects introduced by Mr. Hawes in his address would only be to weaken his remarks; but there were two subjects in particular which he (the Vice-Chancellor) could not refrain from pressing upon the attention of the Society. One was the great question of the supply of food—a vital question, and one which, if properly dealt with, could not fail to be productive of real benefit to the community. This Society, by diffusing useful information on this all-important subject, might do much to check that most fatal of all errors—a senseless panic—with reference to the disease which was now raging amongst cattle. It was, moreover, most important that they should, as far as they were able, both as a Society and as individuals, press upon the legislature the very important point alluded to in the chairman's address, that of obtaining correct agricultural statistics. He believed such statistics would do more than anything else to check unreasonable panic and the unfair enhancement of the price of meat which followed such panic. They had before them the fact that, bad as the disease was, the loss produced by it did not exceed 20,000 head of cattle, which, out of a total of 6,000,000 or 7,000,000 constituting the aggregate stock of the country, was not really a very alarming loss, or such as to affect to any appreciable extent the price of meat food in the country. Moreover he felt convinced that if the importance of the subject was pressed upon the legislature, there would no longer remain such a blot upon our institutions as the total absence of correct and reliable information on so vital a subject as the agricultural produce of the country. This was a matter they would do well to bear in mind during the present session. The next great point alluded to in the address was the French Exhibition in 1867, in which we were again to have our powers as a manufacturing nation tested. We might derive great encouragement in this from what had taken place in the past. The interval between 1851 and 1862 was known abroad to have developed our own national industry to such an extent that the French had become seriously alarmed, and the Government had appointed a commission to see what steps could be taken to prevent the danger to French commerce which was to be apprehended from the rapid advance which England had made in certain branches of manufacture, in which the French were supposed to be pre-eminent. On a former occasion, speaking on this subject, he mentioned a conversation he had had with M. Arlès Dufour, an eminent manufacturer of Lyons, and a most enlightened man. The great strides which had been made in this country in manufactures between 1851 and 1862 that gentleman attributed entirely to the exertions made in the cultivation of art in this country, and especially to the schools of design which had been established; he did not attribute it to the employment here of French workmen. Looking at the enormous interests at stake, it behoved us to do our utmost to be prepared for this friendly international contest. Our powers in this respect were much greater now than they were in 1862, owing to the friendly intercourse which had, during the intervening period, been increased between the two countries. The Anglo-French Exhibition which had recently taken place, as alluded to by the chairman, had been most encouraging. The artisans and workmen of the two countries had thus become better acquainted with each

other's capabilities, and had met on the most friendly terms. We had every evidence that the Emperor himself honestly desired a free, fair, and open competition; and it would be greatly to our discredit as a nation if we did not more than hold our ground and show that we had made rapid advances from 1862 to 1867. Before sitting down he would touch upon one other amongst the many points of interest brought forward in the address—viz., the question of trade marks. He was glad the chairman had adverted to that subject. It had come before him (the Vice-Chancellor) in his judicial capacity on more than one occasion, and he was anxious to impress upon any committee who might have charge of it the importance of discouraging, as much as possible, that odious and contemptible puffing which now took place through the medium of trade marks. It would be to our credit as a nation, as moralists, and as Christians, if we endeavoured as far as possible to induce, both by example and by precept, abstinence from everything in the shape of falsehood or undue self-laudation in matters of trade; as evidenced by those foolish designations which the legal tribunals were called upon to recognise as trade marks, although they might be ashamed of them. He would not specify the ridiculous names often given to articles, conveying the idea of the greatest superiority, and involving in some cases fanciful description and the most fallacious representations. With cases of absolute fraud the courts knew how to deal; but the legitimate development of art and manufactures was retarded and injured by the endeavours of noisy pretenders to thrust forward unworthy goods which could only bring discredit upon our markets, especially in competition with foreign nations. In conclusion, he would express a hope with reference to another topic not alluded to in the present address, viz., the Patent Law, that something in that direction would be done by the legislature in the present session of Parliament.

The vote of thanks to Mr. Hawes was then put to the meeting by the Vice-Chancellor, and carried by acclamation.

The CHAIRMAN said he felt greatly obliged to the Vice-Chancellor for the terms in which he had spoken of the address which he had had the honour as well as the pleasure of reading. The observations that had been offered would stimulate him to, if possible, still further exertions in promoting the objects of the Society. He took the warmest interest in its business, and the subjects which generally engaged its attention were those to which his own tastes naturally directed him. It was his pleasure and privilege to act with a Council the members of which gave the fullest support and assistance to their chairman, and were always willing to take upon themselves their full share of the labours devolving upon them. He begged to express his great gratification at the kind manner in which his efforts to carry on the business of the Society, and to promote its prosperity, had been received by the members.

Proceedings of Institutions.

LONDON MECHANICS' INSTITUTION.—On Monday evening, the 13th inst., the distribution of prizes and certificates obtained by the members of the Mechanics' Institution, Southampton-buildings, at the last examination of the Society of Arts, took place in the theatre of the institution, Sir Francis Sandford in the chair. The whole of the 12 candidates who passed the examination of the Local Board were successful in the examination of the Society of Arts, and obtained 17 certificates, five first class, eight second, and four third. During the last six years only one candidate who passed the examination of the Local Board had been rejected by the Society of Arts. The subjects for which the certificates were obtained included chemistry, book-keeping, geography,

algebra, arithmetic, geometrical drawing, English literature, writing, shorthand, and needlework. In addition to the 12 candidates who passed the examination of the Society of Arts there were four who obtained certificates from the Metropolitan Association for promoting the Education of Adults, and three who obtained prizes in the institution classes. The chairman, previously to distributing the prizes and certificates, addressed the audience and complimented the London Mechanics' Institution on the successful position it had attained in educating those who attended its classes. The prizes and certificates were then distributed, the successful candidates receiving, in addition to the books and testimonials, a full measure of applause on the part of those present. A vote of thanks to the chairman brought the proceedings to a close.

DUBLIN INTERNATIONAL EXHIBITION.

The ceremonial of closing this Exhibition took place on Thursday, the 9th instant, in the presence of a very large assembly.

At three o'clock the chair was taken by his Grace the Duke of LEINSTER.

Mr. CHARLES E. BAGOT, secretary to the Executive Committee, read the following report of the Executive Committee:—"At the close of the Exhibition it will probably be expected that some account should be given of its fortunes, and of the principal features which have marked its course. The statistics being still incomplete, and time not admitting of their careful analysis, a general summary, with approximate estimates of its results, is all that can now be presented. The enterprise, which has now reached its termination, had no pretensions to cope with the great Exhibitions of London and Paris. Its prototype, and that with which it may most legitimately be contrasted, is the Dargan Exhibition of 1853; and a brief comparison of some of their results will probably be interesting, and will give the best idea of the changes that have taken place in the interval in the commercial relations of the country, as well as in the scope and character of public exhibitions. The extent or space available in both was nearly equal, but it was very differently distributed; in 1853 the number of exhibitors in the British department was 1,666; in 1865 there were only 770. But, on the other hand, we have 1,544 foreign and colonial exhibitors, while only 288 appeared in 1853, and thus the total number of exhibitors shows a considerable excess over those of 1853. The committee were in truth obliged to exclude a great deal of raw produce, and of the coarser and less interesting class of manufactures, in order to make room for our foreign friends, and for the more attractive description of objects, of which a due proportion was, as experience has shown, essential to the success of an exhibition. In 1853 but one colony (besides India) and seven foreign countries were represented. This year twenty-one colonies, exclusive of India, and twenty-one foreign countries have obtained space. The number of works of art exhibited in 1853 was 1,493, while this year they amounted to 2,072. Perhaps the sculpture has been generally regarded as the most striking and marked peculiarity of the Fine Arts Department. It is unquestionably a very remarkable collection—in the number, interest, and value of the works in marble far exceeding that of 1853, and even that of Manchester in 1857, and, indeed, any previous exhibition whatever. The Spanish and Scandinavian artists, whose works have deservedly attracted so much notice in these galleries, were wholly unrepresented in 1853, and the same observation applies to the instructive series of cartoons, as well as to the very numerous illustrations of the art of photography. We are not able to state at present with any precision the value of the contents of the Exhibition. At a rough estimate, the industrial objects may be set down at more than £400,000, and the

fine arts at nearly £300,000, making a total value of £700,000. The Exhibition has been open for 159 days and 51 evenings, and the entire number of admissions of every kind has been a little over 900,000, being an average of about 5,000 by day and of 3,000 by night. From the opening, under the distinguished auspices of his Royal Highness the Prince of Wales, the favour of the public has for six months sustained the undertaking with remarkably even tenour, the number of visitors rarely to any great extent rising above or falling below the average. It is true that we have had few adventitious aids to stimulate in any extraordinary degree the public interest or curiosity respecting the Exhibition. For her Majesty's patronage, so graciously extended to us from the commencement, the committee are most grateful, as well as for the presence on the opening day of their Royal Highnesses the Prince of Wales and the Duke of Cambridge; nor should mention be omitted here of the kind support which the undertaking has always received from Earl Russell, her Majesty's Secretary for Foreign Affairs. But with these exceptions the visits of illustrious personages have been few, and the Exhibition has had mainly to rely on its own intrinsic merits, and on the public appreciation of the lessons of industry, skill, and taste which the contents were so well adapted to inculcate. Without the excitement of novelty, which must in some degree have helped Mr. Dargan's Exhibition in 1853, this Exhibition was unaided also by the enthusiasm which was called forth by the peculiar and unprecedented circumstances under which the patriotic spirit of an individual undertook the sole risk and responsibility of so vast an enterprise. In one respect, however, we have been most fortunate. The splendid weather with which we have been blessed throughout the summer, and which continued to cheer us down to the very verge of winter, greatly favoured the Exhibition, and suggested and encouraged a considerable extension of the excursion and return ticket system on the railways hitherto but little developed or tried in Ireland. Notwithstanding the beneficial influences of the season, the causes already noticed are probably sufficient to account for the fact that the number of our visitors was a quarter of a million under those of 1853, and that our total receipts—about £45,000—are considerably under those of 1853, which amounted to £53,000. But although our expenses have been very large, and in some items, such, for instance, as those consequent upon opening in the evenings, were without precedent in 1853, nevertheless, in one particular we have been saved from a most formidable expenditure, which in 1853 converted the not unreasonable hope of profit into a very serious loss. For the Exhibition of that year it was necessary to erect wholly new and special buildings at a net cost of upwards of £40,000, while for the noble and spacious palace in which we are now assembled, erected by the enterprise of a joint-stock company, an equitable rent, moderate indeed when compared with the saving and avoidance of risk to the Exhibition, is all that our friends are chargeable with. It is known that, according to the arrangement with the Winter Garden Company, they released all other parties from liability or guarantee, and advanced the moneys required for our preliminary expenses. Their prospect of a return, and of the payment of their rent, was entirely dependent upon the success of the Exhibition. Under these circumstances, it is with great satisfaction the executive committee are enabled to report so favourably of the pecuniary results. Although not equal to the hopes of the sanguine, they have happily disappointed the fears of the doubtful and the timid; and there is every reason to believe that not only will all expenses be covered, but that the Winter Garden Company will receive—not the whole, but the committee sincerely trust the larger proportion—of the stipulated rent. This, if not a brilliant, is at least a tolerably satisfactory conclusion, especially when it is remembered how many

exhibitions in recent years have failed to pay their expenses. It remains only to express once more the warm thanks of the Executive Committee to the various members of the several committees of advice, to the colonial and foreign committees and agents, for the zealous and valuable services they have rendered, and to the noblemen and gentlemen who have so freely lent precious works of art to add to the attractions of the Exhibition."

The LORD MAYOR proposed a vote of thanks to the Executive Committee, which was seconded by the Right Hon. JAMES WHITESIDE, and for which Mr. F. W. BRADY returned thanks on the part of the committee.

Sir ROBERT KANE moved a vote of thanks to the exhibitors, which was seconded by the Archbishop of Dublin.

Sir BERNARD BURKE, Ulster King-at-Arms, declared the Exhibition closed.

THE PARIS EXHIBITION OF 1867.

The Minister of Public Instruction has addressed a report to the Emperor, dated November 8, recommending that in the Paris International Exhibition of 1867 there should be a representation of the progress made by the moral and political sciences in France during the last 20 years, by means of a series of reports from eminent men upon the several branches of these subjects.

The Minister's report is as follows:—

"Sire,—The idea of periodical exhibitions is entirely French. It dates from Louis XIV. for the fine arts, from the Revolution for trade; and France, after having given it to the world, has unceasingly enlarged its proportions in order to render it more fruitful.

"As far back as 16 years ago, Sire, you wished to invite all the nations to these grand solemnities.

"It was England that realised this idea, and saw the first International Exhibition.

"The Palace in Hyde-park only received in 1851 objects furnished by nature herself or by human industry. In 1855 the Emperor decided that the two previous French Exhibitions should be united. Art was placed side by side with manufactures.

"Amid the magnificence displayed in London in 1862 it was recognised that the most precious instrument of labour was still man, and that the productive value of the workman would be increased by augmenting his intellectual value. The English Commission created a special class of popular instruction with this same object; the Imperial Commission has just established two.

"But international exhibitions tend to become the complete representation of modern society in all its modes of activity. After having placed art by the side of manufactures, which it embellishes and elevates, your Majesty wished to place pure science near the applications which are only its outward manifestation. While the Emperor directs the study of the questions which will lead to the discovery of that organisation, which, since the destruction of trade corporations, the mercantile world has been constantly seeking, you desire, Sire, that it be demanded of the moral and political sciences what they have produced to ameliorate the state of society, and of French literature what it has done 'to elevate the soul of the nation.'

"The way of realising this idea is simple. Let the Emperor deign to authorise the Minister of Public Instruction to be an Exhibitor. If his productions occupy a small space, under a very modest form, they will none the less attract attention; and I do not hesitate to say that several will survive the triumphs of their more brilliant neighbours, since the one much more than the other expresses the mind of France.

"I have already secured the support of eminent men, who will describe in a series of reports, bearing their signatures, in order that each may have the honour as well as the responsibility of his work,

"1. The progress accomplished in France in the ma-

thematical, physical, and natural sciences during the last 20 years—that is to say, since the era of great exhibitions.

"2. The progress accomplished by the moral and political sciences in their application to the necessities of society.

"3. The part fulfilled by French literature, which should be studied less in point of form, which is the mission of literary criticism, than in its effects upon the general education of the country. At the Exhibition Palace, in the midst of those material products which are a pledge of national welfare, the liberal arts can only enter by showing that they bring to a people not only noble amusement, but moral strength and dignity.

"The Emperor, whose solicitude extends from the simple teaching of the infant school to the highest speculations of science, cannot give a more useful encouragement to the latter than this picture of the efforts, the greatness, and even in certain points the defects of the mind of France.

"If foreign nations thought fit to make a similar examination of themselves, it would no longer only be by the inventions of each that all would profit. By a comparison of the progress accomplished in various parts in scientific and moral order, every people would enter the path of fresh progress, the level of civilisation would rise, and an additional guarantee would be given for the peace of the world.—I am, &c.,

"THE MINISTER OF PUBLIC INSTRUCTION,

"V. DURUY.

"Approved, NAPOLEON."

Commerce.

STEAM AND CANVAS.—A New York paper speaks of the remarkable decline of sailing power and advance of steam power on the ocean as evidenced by the fact that on one day twenty steamships left that port—two of them for Europe and eighteen for the Southern ports, to aid in the work of reconstruction. It is an evidence, also, of the way in which that country adapts itself to circumstances. Its sailing marine was becoming almost cumbersome. It had not dock and pier room enough to accommodate it; but as one steamship can do more carrying trade than a dozen sailing vessels, in consequence of the rapidity and regularity with which it traverses the ocean, the latter will gradually vanish, and the United States be able to do all the carrying trade they require with half the accommodation at the piers and docks.

BISMUTH.—It is stated in the *South Australian Register* of Sept. 27th, that a very promising bismuth mine in Spencer's Gulf is being vigorously worked, and is likely to prove valuable.

Colonies.

COLONY OF NORTH AUSTRALIA.—A colonial paper says:—"North Australia is undoubtedly a fine country, but it will be used for nothing but grazing purposes for long years to come, unless capitalists import Asiatic labour, and expend large sums of money in cultivation. This is a matter well worth the consideration of enterprising people in England. They may take North Australia in hand and make something of it at once. If they do not, the development of the country will be slow. Squatters with their flocks and herds will gradually occupy some portion of it, and these, in the course of time, will be followed by settlers able and willing to cultivate the soil."

SUGAR IN QUEENSLAND.—Sugar cultivation seems as attractive as ever in this colony. Every day new land is reported as being taken up under the sugar-growing regulation. The Albert River seems the great point of

attraction, and the operations being carried on are very considerable, a large and profitable return being anticipated. The Colonial Treasurer is about to introduce a bill to legalise the distillation of rum upon sugar-growing estates, the provisions of which, it is fully expected, will secure the planter against the possibility of loss connected with the past year's crops.

Obituary.

CHARLES FRANÇOIS NANTEUIL LEBŒUF, a French sculptor, at the age of 73 years. His most celebrated statue is that of the *Dying Eurycle*, now in the gallery of the Luxembourg. The bas-reliefs of the peristyle of the Pantheon, and those of the pediment of the graceful church of St. Vincent de Paul, near the terminus of the Great Northern Railway, are by his hand. M. Lebœuf was a member of the Academy of Beaux Arts, in the Institute of France.

DR. THOMAS HERBERT BARKER, of Bedford, died on the 24th ult., of a severe attack of typhus fever. He was known by his numerous and valuable contributions to the advancement of medical and chirurgical science, for which he had received the Fothergillian and other prizes of the Medical Society of London. He was a fellow of the Royal Society, of the Royal College of Surgeons, and of many other learned and scientific societies both at home and abroad. He took considerable interest in the promotion of education, and acted for some time as honorary local secretary to the Society of Arts, at Bedford.

Publications Issued.

THE ACTS 23 VICTORIA, CAP. 3 AND CAP. 6, CONCERNING INVENTIONS AND DESIGNS, EXHIBITED AT THE DUBLIN INTERNATIONAL EXHIBITION, 1865, AND INDUSTRIAL EXHIBITIONS GENERALLY. By F. W. Campin, Esq., Barrister-at-Law. (London: Stevens, Sons, and Haynes; W. Hilton; E. and F. Spon. Dublin: Hodges, Smith, and Co.)—To this work are appended notes and citations of modern and important cases as to exhibition, publication, and user; also a statement of some principal points in the law and practice of patents, with an appendix, containing the provisions of the Art Copyright Act, 1862, and the Merchandise Marks Act, 1862. The writer hopes that the remarks contained in this work may serve to warn Exhibitors of their real position under the Acts of Parliament therein referred to. The protection afforded by those Acts is so meagre as, in his opinion, to be utterly unreliable. The notes and citations are designed to be useful to the legal profession, as well as to inventors and designers, from presenting in a collected form some recent and important cases referring to Patent Law and Copyright.

SEVEN-FIGURE LOGARITHMS of Numbers from 1 to 108,000, and of Sines, Cosines, Tangents, Cotangents to every 10 seconds of the Quadrant, with a Table of Proportional Parts. By Dr. Ludwig Schrön, Director of the Observatory of Jena, &c., &c., &c. With a Description of the Tables added by A. De Morgan, Professor of Mathematics in University College, London. (Williams and Norgate.)

TRAITE DE L'EXPLOITATION DES CHEMINS DE FER. By Victor Emion, with preface by Jules Favre. (Paris, 2 vols. 18mo.)—A small, but not unimportant work, on a subject that has occupied little attention at present, by an advocate, with a preface by his eminent colleague, M. Jules Favre. The first volume treats of travellers and their luggage, and the second of goods. The object of the work is to make known to the world at large the right of the public as well as the duties of the powerful companies which, to quote the expression of the author, have at the present day the monopoly of transport in their hands. M. Emion takes the traveller by the hand,

leads him to the station, takes his ticket, accompanies him on his journey, sees him safe out of the station at the end of his journey, and explains at each step the duties and the rights of the company, discussing all cases of doubt, in fact explaining fully the laws, regulations, jurisprudence, and equity of the railway system. The same is done with reference to baggage and merchandise, the questions of delay, injury and loss being fully explained, as well as the means to be taken by the public and merchants to guard against risks of all kinds; finally, he explains the course to be taken in cases of dispute, and illustrates his subject by reference to actual cases. Such a popular treatise on the practice and law of railways cannot fail to supply many hints for legislative reform.

HABITATIONS OUVRIERES ET AGRICOLES. By Emile Muller, C.E. (Paris. 4to, with atlas, containing forty plates.)—An important work, which has obtained the favourable notice of the Minister of the Interior, and treats of the habitations of the working classes in town and country, of cités ouvrières, or collections of residences, of public baths and washhouses, and other matters connected with the well-being of the people; it is illustrated by plans of each kind of building, details of construction, and the cost in various countries, together with the laws and regulations applying thereto; details concerning contracts, and sanitary regulations. The author gives an account of the results produced in England as well as in various parts of France; together with ministerial reports and accounts of philanthropic associations. The work also treats of mutual building associations, and co-operative societies for the supply of food, baths of all kinds, steam and other methods of washing and drying by means of hot air. Much attention has been paid to these subjects in France during the last few years, and much experience acquired, both by successes and failures. In the exhibition of 1867 a large amount of space will be devoted to these matters, and there is no doubt that the working classes of all countries will benefit by the discussion of the subject, and the practical exhibition of what has been done in various states.

Notes.

CARELESSNESS OF THE PUBLIC.—More than *two million* letters are every year returned to the writers, from some error or other in the directing or posting. Twelve thousand letters or so are posted without any address whatever on the outside; these are opened at St. Martin's-le-Grand as the only course to pursue, and are sent back to the writers. One such letter enclosed paper money to the value of £4,000, which was promptly returned to the sender; and thus ended a double blunder—sending so large a sum by post, and failing to address the letter. Twenty thousand letters or more arrive at the chief office every day without any street or number being written on the outside—simply Mr. So and So, London. Fifty thousand postage stamps are every year found in the letter-bags and boxes, rubbed by friction from the letters and newspapers to which they had been imperfectly cemented. One newspaper in about five thousand slips from its cover through careless fastening, and comes to grief; for the sorters do not know which covers belong to which newspapers. Without noticing the country post-offices, or even the 1,100 receptacles for letters which now exist in the metropolis, City men send to the chief office alone two hundred letters every day, entirely unsealed and unfastened. Some letters have no address either on the inside or outside.—*Literary Magazine*.

CITY HORTICULTURE.—On Tuesday last the Lord Mayor opened a flower show at Guildhall, held under the auspices of the Winter Horticultural Society, which includes amongst its members a large section of our most eminent gardeners and nurserymen. The object of the exhibition was to obtain funds for the relief of

gardeners and nurserymen in calamity, old age, or sickness. A most interesting and beautiful collection of flowers was brought together, and these, with the additional attraction of the decorations of the Guildhall as at the civic banquet, brought a very numerous attendance.

Correspondence.

CARPET DESIGNING.—SIR,—At this season of the year the small carpetmakers of Ooshak, Koolah, Ahiediz, &c., from the great Turkey carpet districts, come up to Smyrna to sell their year's produce of carpets, prayer carpets, rugs, &c., and which they sell to the merchants and private customers. One of these men having a rug with a well balanced pattern, I tried to learn from him who was the designer, but, partly from suspicion, and partly because I could not hit upon the right word in Turkish, he held me at bay for some time, and said that the women of his family did it. At length, in the course of conversation, gaining his confidence more—for he was proud of having served with the English in the Crimea, and of having sent carpets to England—he told me that a dervish was the *mi'mar*, that is "architect." Of course I had tried every artistic word without thinking of that. *Mi'mar* is not a bad word, for the style of this and many of the carpets is that of the arabesque ornaments of the mosques and stained glass, having the characters of a school. I have never yet come across an ecclesiastical *mi'mar*, but I have seen recent works of theirs in decoration, which attest their living taste. I should like to learn more of this decorative school, which showed many interesting works at the Imperial Ottoman Exhibition in Constantinople in 1863.—I am, &c., HYDE CLARKE.

Smyrna, Turkey, 4th Nov., 1865.

MEETINGS FOR THE ENSUING WEEK.

- MON. ...British Architects, 8.
Medical, 8, Clinical Discussion. Dr. Anstie "On some Clinical Results of the Investigation of the Pulse in Disease by Marey's Sphygmograph."
TUES. ...Civil Engineers, 8. Discussion upon Sir Charles Bright's paper, "The Telegraph to India, and its Extension to Australia and China."
Ethnological, 8. Mr. Thomas Wright, "On the true Assignment of Bronze Weapons, &c., supposed to indicate a Bronze Age in Western and Northern Europe."
Statistical Society, 8. Dr. W. A. Guy, "On the Question whether there is a Science of Statistics, and on its relation to Political Economy and Social Science."
WED. ...Society of Arts, 8. Mr. J. Bailey Denton, "On Water Supply, especially in Rural Parishes and Districts."

Patents.

From Commissioners of Patents Journal, November 10th.

GRANTS OF PROVISIONAL PROTECTION.

- Aneroid barometers—2714—T. Cooke.
Artificial respiration, apparatus for producing—2721—W. H. Kitchen.
Blankets, endless—2716—M. L. J. Lavater and J. Kershaw.
Bottles, packing and labelling—2775—G. Clark.
Boots and shoes—2785—C. E. Goodman.
Bricks, &c., machinery for making—2728—I. Roberts.
Carriages, wheels for—2708—S. R. Rowe.
Cartridges, needle—1908—J. W. Robertson.
Coal and shale, distillation of—2793—E. Meldrum.
Colouring matters, preparing—2564—J. Holliday.
Colour slide and case—2598—J. Robertson.
Copper ore, calcining—2720—A. Bankart.
Cotton, &c., preparing and spinning—2651—G. A. Ermen.
Cotton presses—2722—C. Boyd.
Cranes, travelling—2524—D. Grieg and R. Burton.
Cutting moulds and planing wood—2711—W. B. Haigh and W. Blissell.
Doors and windows, securing—2819—A. H. Gilmore.
Driving, accelerated motion for—2779—J. H. Kitson and J. Kirby.
Driving or actuating machinery—2773—J. Garnett.
Engine, motor or pumping—2453—W. E. Newton.
Fabrics in stoves or chambers, hanging—2685—W. Schofield & J. Smith.
Fire-arms, breech-loading—2628—J. H. Selwyn.

- Fire-arms, breech-loading—2752—W. M. Scott.
Fire-arms, central fire breech-loading—2709—J. and G. H. Needham.
Fires, extinguishing—2373—F. Carlier.
Flax, machinery for hackling—2781—S. Cotton.
Furnaces—2803—R. Cassels and T. Morton.
Furnaces and boilers for the consumption of smoke, construction of—2746—C. Matthews, H. B. Southwick, and J. Fereday.
Lamps—1862—A. H. Platt.
Lozenges, &c.—2730—H. A. Dufrene.
Magic lanterns, transparent slides for—2815—S. Solomons.
Marble, &c., saws for cutting—2188—E. H. Woodward.
Millstones, dressing—2817—A. V. Newton.
Nails—2789—W. Whittle.
Photographic papers, preparation of—2754—W. E. Newton.
Pigments for printing upon paper, &c.—1766—J. and R. S. Dale.
Pneumatic ways—2537—W. E. Newton.
Projectiles—2757—A. Krupp.
Propelling shafts, transmitting motion to—2807—W. E. Newton.
Pumps, rotary—2706—C. D. Abel.
Railway carriages, wheels for—2771—T. Greenwood.
Railway chairs—2724—J. D. Frazer.
Railway signals, a new self-adjusting apparatus for—2715—G. Mussell.
Retorts, mode of decarbonizing—2465—A. V. Newton.
Roller blind furniture—2696—J. Everard.
Screw wrenches—2783—J. Buckingham.
Sewing machines—2740—W. Clark.
Ships, coating for bottoms of, to prevent oxidation—2791—R. D. Dwyer.
Slide valves, pistons, and glands—2700—T. Adams and G. J. Parson.
Smoky chimneys, prevention and cure of—2602—W. Cooke.
Soda, caustic—2801—G. Robinson.
Spinning and doubling, mules for—2763—H. B. Barlow.
Steam boilers—2738—A. Chaplin.
Steam boilers, cleaning the tubes of—2761—G. Davies.
Steam boilers, heating the feed water for—2712—J. White.
Steam engines—2759—E. Hunt.
Steam hammers—2805—C. Emmet.
Stirrup-bar, double-acting safety—2704—W. Johns.
Telegraphic wires, submarine electrical, laying—2670—R. E. Kaulbach.
Telegraphic cables, submarine, laying—2705—E. E. Middleton.
Umbrellas and parasols—2349—S. Fox.
Ventilators—2799—D. B. White.
Weaving, looms for—2811—A. Jackson, J. Clough, and C. Ashley.
Window sashes and sliding shutters, suspending—2734—H. Newman.
Wool, combing—2797—G. E. Donisthorpe.
Woven fabrics, calendering and finishing—2769—E. Heywood.
Yarns and fabrics, rollers for washing—2686—W. Schofield & J. Smith.

INVENTIONS WITH COMPLETE SPECIFICATIONS FILED.

- Sugar, cleansing or bleaching—2872—G. A. Jasper.
Textile substances, ascertaining the degree of torsion in the threads of—2828—B. F. Brunet.

PATENTS SEALED.

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|----------------------------------|-------------------------|
| 1321. R. Winder. | 1355. P. C. Lafont. |
| 1322. W. Chubb and S. Fry. | 1363. C. O. Crosby. |
| 1326. J. Eddy. | 1381. G. H. Brookes. |
| 1340. G. Ennis. | 1403. A. G. Bigorie. |
| 1341. W. Deakin & J. B. Johnson. | 1421. H. A. Bonneville. |
| 1342. C. J. Appleby. | 1517. T. Pritchard. |
| 1343. G. Elliot and S. B. Coxon. | 1553. J. Howarth. |
| 1344. R. and H. Harriid. | 1698. T. L. Jowett. |
| 1349. H. A. Bonneville. | 1718. J. K. Farnworth. |

From Commissioners of Patents Journal, November 14th.

PATENTS SEALED.

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| 1356. R. A. Brooman. | 1423. G. Ashcroft. |
| 1368. W. Montgomerie. | 1426. J. Firth. |
| 1365. W. Haigh. | 1435. J. Giers. |
| 1367. H. Rushton. | 1460. L. Moser. |
| 1369. C. S. Billups. | 1498. T. Summerson. |
| 1379. C. Copus. | 1525. A. Lancaster. |
| 1384. H. de Mornay. | 1545. C. H. Wansbrough. |
| 1385. T. Richardson and M. D. Rucker. | 1574. J. de Hemptinne. |
| 1393. J. A. Coffey. | 1707. W. E. Newton. |
| 1395. W. and G. B. Smith. | 1734. W. E. Newton. |
| 1405. J. H. Johnson. | 1884. G. Nimmo. |
| 1407. J. M. Clements. | 1942. W. E. Newton. |
| 1410. P. A. le C. de Fontaine-Moreau. | 1949. W. E. Newton. |
| 1411. E. McNally. | 2010. P. Cato. |
| | 2332. J. Macintosh. |
| | 2363. A. V. Newton. |

PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

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| 3008. J. A. Fullarton. | 3035. G. F. Lyster. |
| 3011. W. Clark. | 3343. W. and J. Galloway. |
| 3021. E. Sonstadt. | 3060. R. and P. Sykes. |
| 3113. G. A. Buchhelz. | 3038. W. Palliser. |
| 3022. G. Kent and E. P. Griffiths. | 3049. J. Faulding. |
| 3047. T. Bradford. | 3053. A. Twaddell. |
| 3051. J. A. Duntze. | 3077. A. and H. Illingworth. |
| 3165. A. V. Newton. | 3097. C. W. Harrison. |
| 3034. T. G. Ghislin. | |

PATENT ON WHICH THE STAMP DUTY OF £100 HAS BEEN PAID.

2507. A. Henderson.